Nagoya University of Arts and Sciences: Institute of Health and Nutrition From its inauguration until now

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Nagoya University of Arts and Sciences Institute of Health and Nutrition opened on April 1st 2004 with the aim of "conducting fundamental research regarding people's health and nutrition and to plot the practical development of healthcare and Nutritional Sciences". The Institute comprises of the following five departments 1) Department of General Administration, 2) Department of Food Function, 3) Department of Molecular Nutritional Sciences, 4) Department of Health Care, and 5) Department of International Exchange Program

The Institute's areas of interest are research and development, surveys and analysis, publications in research bulletins and other relevant publications, consignment of external research etc and funding and to commission international cooperation and also to conduct, when necessary, other established required projects. In addition, this University's academic members hold their own responsible positions respectively as Heads of each department.

Regional health activity

＜September 12th 2004＞

◇「Nagoya University of Arts and Sciences: Institute of Health and Nutrition – Inaugural Commemorative Lecture」

At this University, to commemorate the opening of the Institute, we held an inaugural commemorative lecture, receiving sponsorship from the Aichi Prefecture Board of Education, Nagoya City Board of Education, Corporate group of Aichi Prefecture Nutritionists Association and the Chunichi Newspaper.

In his greeting in advance of the lectures, Akihiro Igata (President of Nagoya University of Arts and Sciences) conveyed the following message to attendees:

This University was established as a new University in April 2002; above all a School of Nutrition was planned with the challenge and ultimate aim of creating a future establishment. Formerly, nutritional science, having originated from dealing with *BERI BERI* as a disease and for a long time supplementing the shortage of nutrition was a major issue. However, in our present 'age of satiation', nutritional science, as a subject, has the aim of preventing lifestyle diseases and creating an ideal future society of human longevity. With this in mind, we decided to form the "Institute of Health and Nutrition" in this University. Presently, our University is simultaneously planning a Graduate school of Health Science Research Faculty. Through our aim in developing both of these (the Institute and Graduate school) we hope to give this University a stronghold for the future development in the field of Nutritional Science.

I strongly declare both here and overseas, this Institute open and announce we are determined to move vigorously forward towards our future creation and fulfill the expectations of the society around us. This

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enthusiastic message was received as one of congratulations to the founding of the Institute.

We also received the following message from the Governor of the Nakanishi Academy Corporation, Katsuhiko Nakanishi.

The Nakanishi Academy Corporation was established in 1945 and approved by the Aichi Prefecture Board as a school cooperative in 1951. From its establishment, we have always conducted our education and research with the aim of improving our everyday lives. Above all, we have aimed towards diet fulfillment and so we began by giving cooking lectures and then went onto training nutritionists at junior and vocational colleges. We also established the School of Nutrition in Nagoya University of Arts and Sciences in 2002 which corresponded with the changing era and embarked upon a new form of diet and nutritional education in the days of plenty.

This time we established the 'Institute of Health and Nutrition' in Nagoya University of Arts and Sciences with the cooperation of participants such as the President, the Dean and others, and it is hoped we can fulfill our aim to gain a stronghold in this area. Through the various activities in this Institute I truly hope that the standard of education and research concerning health and nutrition in our academy continues to improve and that we can also make a valuable contribution to the local community. This is the message, we received from the Governor.

An explanation followed with an outline and synopsis of this Institute given by Katsumi Yamanaka (Director of Institute).

"We have already started embarking upon our specific projects by actively offering open lectures given to those actively involved in nutrition and research fields as well as local people. By doing this we hope to make a positive contribution to the local community. We have in addition already organized Tokai Dieticians research group and we have set up this bureau in our Institute and these workshops are now in practice. There are currently approximately 80 active members including Doctors, Dentists, Nurses, Nutritionists and others. In addition we are planning some fundamental pharmacological research into chemical substances which influence blood sugar levels. We also plan to publish our own "Institute of Health and Nutrition bulletin". Through these projects, we hope to achieve a contribution to society as a whole. In order to do this, we ask for everyone's guidance and support".

We received the following lectures from speakers.

Masami Muramatsu (Professor of Saitama Medical University – Director of Saitama Medical School Research Center for Genomic Medicine)

Human Genome decoding and Medical Science hereafter.

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The human genome has an enormous distribution of about 3 billion base pairs. We, as mankind, succeeded in making a "summary" of the genome by the end of the 20th century. The number of genes included in our genome is thought to be approximately 32,000. Moreover, we learned there are far more of so called non- genetic DNA than true genetic DNA.

However, if we were to discover that human genome was sufficient to understand the whole cycle of life, from conception to death, then, we have to say, this would be a monumental achievement of modern science. On the other hand, even if we say that distribution is determined, we are still yet to discover all the functions of genes. Therefore, any analysis of these remains to be solved from now on. Hence, how we create life with these genetic networks working interactively with our environment is the most interesting problem from now on.

The decoding of human genome has had a huge impact on medical science.

Firstly, we deal with human disease as an occurrence due to an interrelation between our so-called physical

constitutions controlled by our genes, along with the variety of stress one experiences, namely our environment. However, once the whole function of genes emerges, it will be relatively simple to decide which genes are responsible for one particular disease. Within the genes discovered through the Human Genome Project, there are more than 2,000 genes which are clearly related to disease (according to OMIM). However, even if we were to confirm this relationship, it is still not clear on how they are functionally related. Interestingly, we are gradually discovering that, whilst one gene may be involved in many diseases, there can be an inverse effect where one particular disease can occur due to a different set of genes. To be precise, we have gradually realized that the relationship between the genetic function, body function and its abnormal form as a disease is more complicated than we expected. We can say this discovery is imminent to a huge revolution in medical science.

Toshihiko Oosawa (Professor of Nagoya University Graduate School of Agricultural Sciences-Research Faculty). Food and its chemical functions (Course Professor)

The future of food function

(Contents)

There has been a movement attempting to scientifically analyze how “food constituents” including vegetables, fruits and spices accomplish their function in the prevention of “lifestyle diseases” such as “cancer” or “arteriosclerosis”. This movement was started in the United States in 1990 as ‘The Designer Foods Project’ and I have participated in the project from its outset. The importance of ingredients conventionally know as “non-foodstuffs” (polyphenol -such flavonoid, anthocyan, sulfuric compounds, terpenoid and alkaloid etc) have gradually been recognized.

Despite Japan being a world pioneer in food function research which started here in 1984, we can safely say that Japan has now been surpassed in this field with research known as “functional foods” by global research movements. However, it is impossible to prevent particular diseases by simply determining the function of one particular food element, which has until now been the focus of recent research. A well balanced intake of elements including familiar food in our daily diet is the fundamental notion of “preventing disease”. I have been preaching the necessity to be aware of the importance of the intake of 12 food groups with consideration to the balance of “non foodstuff” elements in order to prevent “lifestyle diseases”, not only “cancer”. However, in order to prevent “lifestyle diseases”, we need to know the specific combinations of element intake, which unfortunately, is not evident in scientific research data thus far.

In order to reduce the risk of “lifestyle diseases” it is necessary to solve the molecular role such as intestinal immunity and absorption and metabolism through a scientific approach using biomarkers. Recently, the research movement has largely expanded from genome analysis to proteome analysis and after this genetic discovery; the development of the protein- micro alae has become a prominent factor.

When fats, protein and nucleic acids etc (known for their importance as living organism constituents) over materialize, fat peroxide and free radicals appear. Discovering what kind of oxidized injury occurs can be carried out using two positions of research proceedings; one of these is that of organic chemistry using investigative equipment such as the Mass Spectrometry, and that from an immunological perspective. Through this we have been developing the “anti-oxidization of food” based on this scientific evidence. As a result, we have developed many “monochronal antibodies” which are unique in oxidizing stress and at the centre of this research; we are in the process of developing an ‘antibody chip’ in order to intensively evaluate oxidizing stress biomarkers.

Tadayuki Takahashi (Former Shima Kanko Hotel General Manager · Head Chef)
Sun, and ocean's bounty

Cooking is an exploration of delicacies which means the creation of new dishes.

One dish can give people both surprise and joy. Cooking is an art which remains in your heart and memory. Unlike other forms of art as a dish doesn't keep its form like a painting or a piece of music. That is to say, in order to create a dignified dish you need a similar stature to an artist, for that, it is firstly necessary to familiarize oneself with technique, secondly, to remain loyal to tradition; we should learn conventional French cooking methods, and learn to recognize and know ones own tradition and culture here in Japan and then modestly serve ones creation.

However, if you are merely content with just that, you can not create anything new. We are always fighting to keep true to ourselves.

As we are living and questioning this era, our society and people, if we wish to receive "an appraisal" as an answer, the strongest demand is the concept of originality.

＜February 26th 2005＞

◇「Health Nutrition Forum 2005」

At this university, we held a lecture and panel discussion entitled "Considering senior citizens at a dining table" — to live a long, healthy life.

＊ Kayo Matsushita (Full time instructor at Kagawa Nutrition university)

＊ Title :「Considering senior citizens at a dining table」

[contents]

What are the eating habits for health and longevity? Eating alone is not only a problem for children, but also for senior citizens; this is also the case even if people live together with their families, members may still eat individually. In addition, there are cases where they simplify their meal by just eating confectionary bread, as it is considered a nuisance to make anything else. Eating together makes the meal increasingly well balanced and helps to promote senior citizens' psychological and physical wellbeing, which in turn leads to creating regional vitality.

There was a talk showing certain discoveries made through a survey of senior citizens meals, using slides to show the actual conditions of dining table and problems, also the idea to change the concept of the dining table to become a place of health and longevity.

She explained the five rules of 'the bento (lunch) box method' and these were explained using slides as follows; 1) You should choose an appropriate size of bento (lunch) box, 2) The combination should contain the following proportions; 3 parts staple food, 1 part main dish and 2 parts side dish 3) You should arrange the food securely to prevent the food from moving around in the box. 4) Avoid using the same method for each dish food component. 5) It should look both appealing and appetizing.

In a panel discussion, Katsumi Yamanaka (Institute of Health and Nutrition - Director) as Coordinator, Kayo Matsushita as Advisor, On the panel the following people contributed; representing senior citizens; Kiyoko Suzuki who lives in Nagakute cho, Aichi gun and Kotefu Hagi from Inabe City in Mie Prefecture. Representing Nutritionists were; Sadayuki Onodera, Chairman of Aichi Prefecture Nutritionists Association; representing dentists Kaoru Nonoyama.

We received a lot of questions from the floor concerning problems experienced by senior citizens, for example undernourishment, the decreasing ability to chew and swallow, losing teeth etc. An active exchange

took place and it was meaningful for all who participated

＜October 1st 2005＞

◇「**Lecture**」held at this university

＊ Speaker : Kazuo Murakami (Emiritus Professor of University of Tsukuba)

＊ Title :「Eliciting the full potential of Laughter and affection」

[contents]

The research of genes is gaining new momentum and we expect the decoding of genes to solve the mystery of life. However, in the process of decoding, we are gradually realizing it is not that simple. Specifically, the deeper one explores the discovery of just one single cell. The more complicated it gets.

The mechanism of life is all but a mystery; people simply say 'live', however, there isn't anyone in this world who lives completely alone. The act of breathing and our blood circulation are not intentional, the hormonal system and autonomic nervous system acts involuntarily, therefore we live.

The activity of the hormone system and autonomic nervous system is governed by genetics; so what actually controls the genes?

Each gene works under amazingly harmonious conditions. When one gene starts working, other genes notice this and stop themselves working or increase their pace of work and manage overall control on the system.

In the first place, human beings are not the ones who produce the blueprints of the body, which is equal to a few thousand volumes of encyclopedias in a tiny space.

Over and above human skill, the miraculous work of nature one can only call it" something great". The life of all living beings, including humans can be said to be derived from "something great". In the beginning of the 21st century, we will considerably analyze the mechanism of genetic ON・OFF. At the same time we need to assess how we can control genetic ON・OFF genes, which are surrounded by environmental factors and stress. What kind of chemical changes happen inside the body when we experience feelings of sadness, happiness and affection? And also how is the work of genes related to this? We think we are able to talk about this mechanism using scientific language in the 21st century. There is also the introduction of the experiment results of how laughter can affect blood sugar level in diabetics, as well as new data about genetic ON · OFF.

＊ Speaker : Teruaki Tamura (Head Chef Japanese Restaurant Tsukiji Tamura)

＊ Title :「The spirit of hospitality and food preparation」

[contents]

As the first proprietor of this restaurant, my father Heiji Tamura used to say 'when you get stock in, make sure you use it all up' the meaning of this, is that "we should cherish things and make good use of them" i.e. one should show devotion towards ones materials and cooking. If you keep cherishing things, you become 'a person who can notice clearly'. I have heard that people such as, Mr. Morita (Sony), and the Nobel Peace Prize Winner – Wangari Maathai (Environment Vice Minister of Kenya) embarked upon spreading the Japanese word '*<MOTTAINAI>*' in the global languages, keeping it in Japanese, as there appears to be no direct translation in English. We can also attribute this respectable attitude to our general way of life

He also talked with great humour about what is 'true taste' and 'taste of home cooking'.

Investigative Research

In October 2002 Allah Nawaz Memon, from the University of Sindh, Institute of Biochemistry, (Sindh, Pakistan) came to Professor Natori's Nutrition Biochemistry laboratory in the School of Nutrition at our University as a visiting researcher for three months. This provided a good opportunity for Prof. Natori to visit the University of Sindh in February 2003, to discuss the possibility of forming an international exchange agreement between the University of Sindh and Nagoya University of Arts and Sciences.

Prof. Natori heard from Prof. Memon that Nerium indicum (N.I.) a bush belonging to 'Phlox' group whose natural habitat is in the Sindh region, bears leaves which have the function to decrease the blood sugar level and it has been used as treatment for diabetic sufferers and Prof. Natori was therefore commissioned to research the functional mechanism of N.I in Japan

When Prof. Natori returned to Japan, he undertook this research as part of this Institute of Health and Nutrition's project and decided to carry out collaborative research with Prof. Hideaki Tsuji (Okayama Prefectural University; Dept of Nutritional Science) As a result of animal experimentation over three years, the extraction of N.I shows to have a strong interference with the function of alpha glucosidaze, as well as interfering with the assimilation and absorption of saccharide and an ability to suppress a high blood sugar level after a meal and moreover, there was the discovery that the chemical substance of the suffocate matter is chlorogenic acid.

This result was announced by Prof. Natori in January 2006 in 10th International Symposium on Natural Product Chemistry, held in Karachi Pakistan, as a special lecture. Also the dissertation titled "Characterization of Inhibitors of Postprandial Hyperglycemia from the Leaves of Nerium indicum" will appear in the Journal of Nutritional Science and Vitaminology, Vol. 53 (2007).

International Exchange activities

In this Institute we formed the Dept. of International Exchange and we've been conducting International Exchange through the following main activities since we opened the Institute.

We have held the following lectures;-

＜April 19th 2004＞

＊ Speaker : Daniel Carleton Gajdusek (U.S.A)

Former chief of Laboratory of Central Nervous System Studies, NINDS, NIH.

＊ Title :「Bovine Spongiform Encephalopathy」

Visiting researchers

＜August—December 2004＞

ALLAH BUX GHAN GHRO Assistant Professor,
Institute of Biochemistry University of Sindh. Jamshoro,
PAKISTAN

Overseas student training

＜August 2004＞

Location: Australian Catholic University

Number of participants: 31 Students

Accompanying Professors: Tatsuhiko Ooshima, Katsumi Yamanaka

＜August 2005＞

Location: Australian Catholic University

Number of participants:; 22 students

Accompanying Professors: Akira Tamura, Tatsuhiko Ooshima

＜August 2006＞

Location: Australian Catholic University

Number of participants: 22 students

Accompanying Professors: Kenji Hattori, Katsumi Yamanaka

An International exchange agreement was made with the following two universities

＜August 2006＞

* Australian Catholic University
  (Australia, Sydney)
* University of Sindh (Pakistan)

Academic members field trip abroad as follows

＜February 2007＞

University of California, Davis, USA

Professors: Yasuo Natori, Katsumi Yamanaka

The afore-mentioned are the activities, we have undertaken here at the “Institute of Health and Nutrition” from its inauguration until now, however, since we are still a young Institute, we should mention that the main focus was initially holding open lectures for local people to associate the existence of this Institute both here and abroad. However, from now on, besides contributing to the local community, we strongly believe in the necessity to turn our efforts to ’research and development’ or ‘surveys and research’ which are the main foundations of this Institute.

By doing this, we are able to raise the fundamental existence value of the “Institute of Health and Nutrition” both here and overseas. Fortunately from April 2006, as we set up the Graduate School of Health Science Research Faculty, we are confident that we can closely cooperate with each other, and that this will lead to further development.

Nagoya University of Arts and Sciences: “Institute of Health and Nutrition”: Regulations

(Establishment)

Article 1 We establish the “Institute of Health and Nutrition” (Institute) in our University, to conduct fundamental research regarding people’s health and nutrition and to plot the practical development of healthcare and nutritional science

(Departments)

Article 2 We establish the following departments in the Institute

1 Department of General Administration
2 Department of Food Function
3 Department of Molecular Nutrition Science
4 Department of Health care
5 Department of International Exchange

(Business)

Article 3 The Institute conducts the following businesses to achieve the preceding article’s targets

1 Research and development
2 Surveys and analysis
3 Publications in research bulletins and other relevant publications
4 Consignment of external research etc and funding
5 International cooperation
6 To conduct, when necessary other established required projects

(Staff)

Article 4 We recognize the following positions into our Institute.

1 Director
2 Head of Department
3 Research Fellow or Visiting Researcher
4 Administrative staff

(Director)

Article 5 The Director is responsible for operations and is representative of the Institute.

2 Designated by the Governor, the position of Director is recommended by the President from this University’s Professors,
3 The term of the position of Director is two years, renewable upon agreement.

(Head of Department)

Article 5: 2 Each Department is assigned a Head of Department

2 Designated by the President, based on the Director’s recommendation, the appointment of each Head of Department is made from this University’s academic members
3 The term of the position of Head of Department is two years, renewable upon agreement

(Research fellow or Visiting Researcher)

Article 6 Research fellows are delegated by the President, which is based on the recommendation of a steering committee made up of the University’s academic members

2 Visiting researchers are delegated by the President, which is based on the recommendation of a steering committee made up of appropriate individuals other than the University’s academic

members

3 The term of the position of Research fellow or Visiting Researcher is one year, renewable upon agreement

(Steering Committee)

Article 7 We recognize the steering committee to deliberate the important affairs of the Institute.

2 Members of the steering committee are selected by the Director and Head of Department in accordance to requirements.

3 The steering committee is called upon by the Director and the Director is the Chairperson of the steering committee.

(Other)

Article 8 The President establishes and enforces the necessary items of this delegation with the opinion of the council.

Additional clause

1 These regulations were enforced on 1st April 2004.